

Question 1 - Write down the 20 functional and 20 non functional requirements ?

Functional requirement - Functional requirements define the specific behaviour, or operations of the system. They describe what a system should do, outlining the necessary tasks, actions or activities it must perform to achieve its objectives.

Requirement ID	Requirement Name	Requirement Description	Priority (1-10)
FR001	User Registration	The system shall allow farmers, manufacturers, and admins to register with their details.	10
FR002	User Login	The system shall allow users to log in using valid User ID and password.	10
FR003	Password Management	The system shall allow users to reset or recover their password via email/OTP.	9
FR004	Search Products	The system shall allow users to search products by brand, category, or price.	9
FR005	Product Filtering	The system shall allow users to filter search results by price range and category.	8
FR006	View Product Details	The system shall allow users to view product details such as name, description, price.	9
FR007	Add to Cart	The system shall allow users to add selected products to a shopping cart.	10
FR008	Update Cart	The system shall allow users to update cart items (modify quantity, remove items).	9
FR009	Checkout	The system shall allow users to checkout with selected products.	10
FR010	Payment Options	The system shall allow users to pay via UPI, card, or Cash on Delivery (COD).	10
FR011	Payment Confirmation	The system shall confirm successful/failed transactions and provide receipt.	9
FR012	Order	The system shall create an order record once	10

	Placement	payment/confirmation is done.	
FR013	Delivery Tracking	The system shall allow users to track their order status (Pending, Shipped, Delivered).	8
FR014	Delivery Notification	The system shall notify users about delivery status via SMS/Email.	8
FR015	Update Delivery Status	The system shall allow delivery partners/admin to update delivery status.	8
FR016	Manufacturer Upload	The system shall allow manufacturers to upload product listings with details.	9
FR017	View Product Listings	The system shall allow users to browse product listings uploaded by manufacturers.	8
FR018	Database Management	The system shall allow the DB admin to update, delete, or modify product and user data.	8
FR019	Reports Generation	The system shall generate sales and delivery reports for the admin.	7
FR020	Security & Session Mgmt	The system shall automatically log out users after inactivity.	9

Non functional requirement - Non functional requirements will describe the quality and the attributes of a system, focusing on how the system performs rather than specific behaviours or functions.

Requirement ID	Requirement Name	Requirement Description	Priority (1-10)
NFR001	Performance	The system shall handle at least 500 concurrent users without performance degradation.	10
NFR002	Availability	The system shall be available 99.9% of the time excluding scheduled maintenance.	10
NFR003	Reliability	The system shall ensure that no more than 1% of transactions fail due to system errors.	9
NFR004	Security	The system shall encrypt all sensitive user data (passwords, payments) using SSL/TLS.	10
NFR005	Scalability	The system shall support growth to handle 10,000+ users and product listings.	9
NFR006	Usability	The system shall provide an intuitive UI that new users can	8

		learn within 10 minutes.	
NFR007	Response Time	The system shall respond to user queries within 3 seconds.	9
NFR008	Maintainability	The system shall allow developers to update features with minimal downtime.	8
NFR009	Portability	The system shall run smoothly on desktops, tablets, and mobile devices.	9
NFR010	Backup & Recovery	The system shall perform automatic daily backups and support data recovery in 2 hours.	9
NFR011	Compliance	The system shall comply with Indian IT Act & data protection standards.	8
NFR012	Interoperability	The system shall integrate with third-party payment gateways and courier APIs.	9
NFR013	Auditability	The system shall log all user activities for auditing and fraud detection.	8
NFR014	Localization	The system shall support both English and Hindi for farmers' accessibility.	7
NFR015	Fault Tolerance	The system shall continue functioning despite minor hardware/software failures.	8
NFR016	Data Accuracy	The system shall ensure 100% accuracy of order, price, and delivery data.	9
NFR017	Energy Efficiency	The system shall use optimized server resources to reduce energy consumption.	6
NFR018	Accessibility	The system shall be accessible to differently-abled users (screen readers, large fonts).	7
NFR019	Session Timeout	The system shall log out inactive users after 10 minutes for security.	8
NFR020	Disaster Recovery	The system shall restore services within 4 hours after a major outage.	9

Please prepare 5 wireframes ?

- A wireframe is a basic blueprint or sketch of a screen or page.
- It shows layout, structure, and placement of elements (like buttons, menus, images, text

boxes).

- Usually in black & white or grayscale (no colors, no detailed design).
- Focus is on functionality and structure, not design.

ONLINE AGRICULTURE STORE

← → ↻ 🔍 ☰

REGISTRSTION PAGE

USER ID

PASSWORD

E MAIL

MOBILE NO

Button

ONLINE AGRICULTURE STORE

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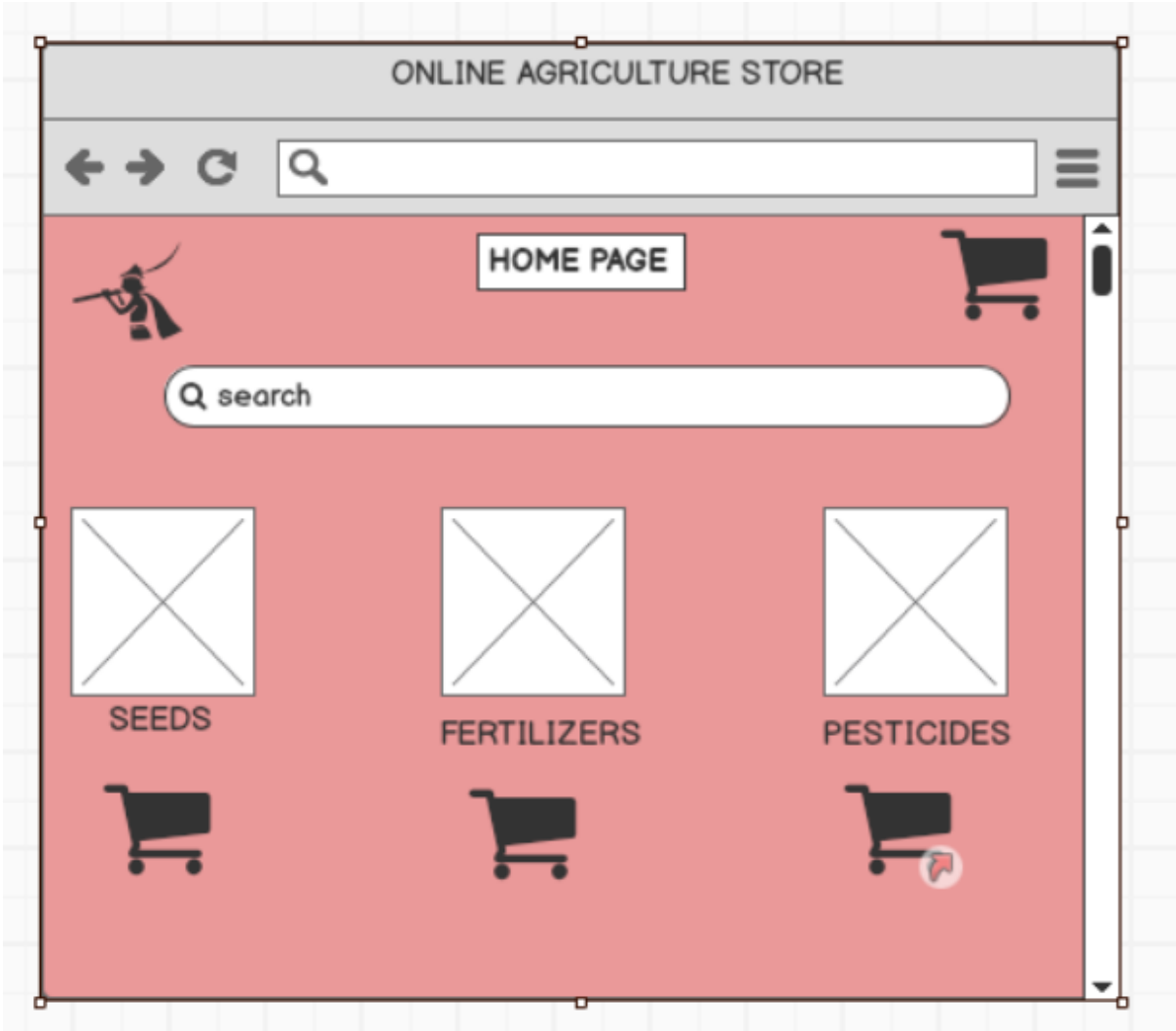
LOGIN PAGE

USER ID

PASSWORD

FORGOT PASSWORD

Button





CART PAGE



FERTILIZERS



MAKE A PAYMENT



ONLINE AGRICULTURE STORE



PAYMENT PAGE

☐ COD

☐ UPI

☐ CARDS

PROCEED TO PAY 



Question 3 – Tools (Visio, Balsamiq) - 15 Marks
Make a note of the Tools, which you are using for the above concepts ?

1. Microsoft Visio

- **Purpose:**

- A diagramming tool widely used for UML (Unified Modeling Language) diagrams, flowcharts, and process modeling.
- **Usage in this Project:**
 - Used to create Use Case Diagrams (showing actors and system interactions).
 - Used to prepare Activity Diagrams (step-by-step workflows of system functionalities).
- **Advantages:**
 - Easy drag-and-drop shapes for UML modeling.
 - Integrates with Microsoft Office suite for documentation.
 - Standardized diagramming conventions suitable for project documentation.

2. Balsamiq Mockups

- **Purpose:**
- A low-fidelity **wireframing tool** for sketching application screens quickly.
- **Usage in this Project:**
- Created **Wireframes and UI prototypes** of the online agriculture store app.
- Designed **black-and-white layouts** for login, homepage, product catalog, cart, and checkout screens.
- **Advantages:**
- Focuses on structure and layout instead of detailed design.
- Helps stakeholders visualize screens early in the project.
- Quick and simple to modify based on feedback.

3. Axure RP

Purpose:

- A professional wireframing, prototyping, and documentation tool.
- Allows both low-fidelity wireframes and high-fidelity interactive prototypes.

Usage in this Project:

- Could be used for building interactive prototypes of the app, showing how users move from one screen to another.
- Useful for demonstrating the shopping workflow: browsing → adding to cart → checkout → order confirmation.

Advantages:

- Supports interactivity and dynamic content (clickable prototypes).
- Good for stakeholder presentations and usability testing.
- Provides specifications and annotations useful for developers.

Question 4 - Prepare RTM ?

It is a document to track the requirements throughout the project lifecycle, ensuring that they are met and that no requirements are overlooked.

Req ID	Req Name	Req Description	Design	D1	T1	T2	T3	T4	UAT
FR0001	Farmer Registration	Farmers should be able to register with the application	✓	✓	✓	✓			✓

FR0002	Product Search	Farmers should be able to search for available products (fertilizers, seeds etc.)	✓	✓	✓		✓		✓
FR0003	Add to Cart	Farmers can add selected products to the shopping cart	✓	✓	✓	✓			✓
FR0004	Order Placement	Farmers should be able to place an order for selected products	✓	✓		✓	✓		✓
FR0005	Payment Integration	Farmers can make payment using UPI, cards, or net banking	✓	✓		✓	✓	✓	✓
FR0006	Delivery Tracking	Farmers can track order delivery status	✓	✓	✓	✓			✓
FR0007	Admin – Add Product	Admin can add new products into the system	✓	✓	✓		✓		✓
FR0008	Admin – Manage Inventory	Admin can update stock quantity for products	✓	✓	✓		✓	✓	✓
FR0009	Customer Support Chat	Farmers can chat with support staff for help	✓			✓	✓	✓	✓
FR0010	Reports & Analytics	Admin can generate sales reports and analytics	✓		✓	✓	✓	✓	✓
NFR001	Page Loading Time	"Each Page should load within 2 seconds"	✓	✓	✓	✓	✓	✓	✓
NFR002	WCAG 2.1 Accessibility	The system must meet Web Content Accessibility Guidelines WCAG 2.1	✓	✓	✓	✓	✓	✓	✓
NFR003	Security (SSL)	The system must ensure secure transactions using SSL	✓	✓	✓	✓	✓	✓	✓
NFR004	Availability	System must be available 99.9% uptime	✓	✓	✓	✓	✓	✓	✓
NFR005	Scalability	The system must support at least 10,000 concurrent users	✓	✓	✓	✓	✓	✓	✓

Question 5 - Prepare 10 test case documents ?

A test case document is a detailed outline used by testers to ensure that a software application or a system is working as expected.

TEST CASE ID	TEST CASE NAME	DESCRIPTION	PRECONDITIONS	TEST STEPS	EXPECTED RESULT	ACTUAL RESULT	STATUS
TC001	Farmer Registration	Verify that a farmer can register	Farmer accesses the application	1. Open the application 2. Navigate to Register page 3. Enter valid details 4. Submit"	Farmer is registered successfully	Registration successful	Done
TC002	Farmer Login	Verify that a registered farmer can log in	Farmer has valid credentials	1. Open login page 2. Enter username and password 3. Click Login"	Farmer is logged in successfully	Login successful	Done
TC003	View Products	Verify that farmer can view available products	Farmer logged in	1. Navigate to Products page 2. Browse categories"	Products are displayed	Products displayed successfully	Done
TC004	Search Products	Verify that farmer can search for products	Farmer logged in	1. Go to Products page 2. Enter product name in search bar 3. Click Search"	Relevant products are displayed	Search results displayed	Done
TC005	Add Product to Cart	Verify that farmer can add a product to cart	Farmer logged in	1. Search a product 2. Click Add to Cart"	Product is added to cart successfully	Product added to cart	Done
TC006	View Cart	Verify that farmer can view cart items	Farmer logged in with items in cart	1. Navigate to Cart page	Cart items are displayed correctly	Cart displayed successfully	Done

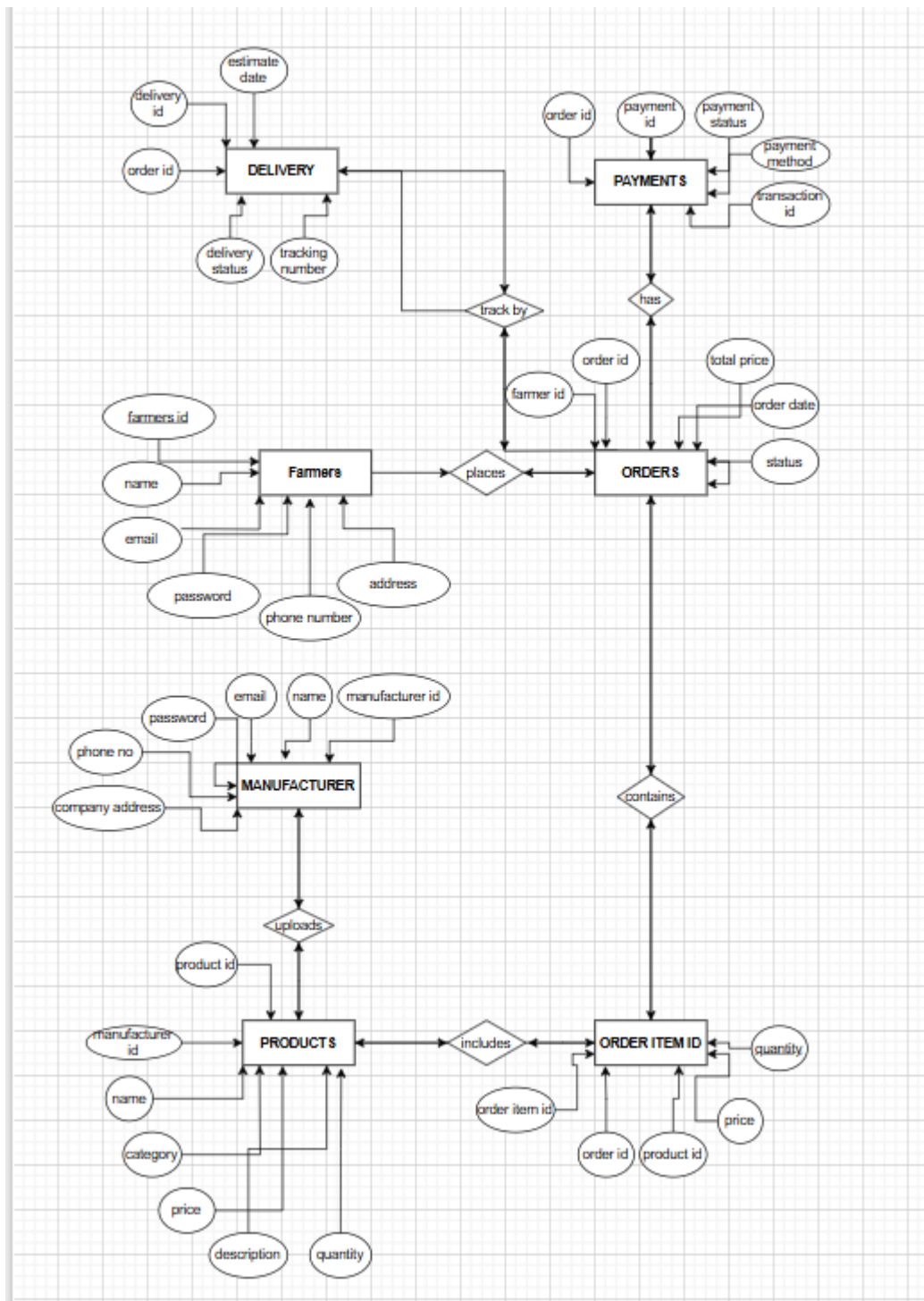
TEST CASE ID	TEST CASE NAME	DESCRIPTION	PRECONDITIONS	TEST STEPS	EXPECTED RESULT	ACTUAL RESULT	STATUS
TC001	Farmer Registration	Verify that a farmer can register	Farmer accesses the application	1. Open the application 2. Navigate to Register page 3. Enter valid details 4. Submit"	Farmer is registered successfully	Registration successful	Done
TC007	Place Order	Verify that farmer can place an order	Farmer has items in cart	"1. Go to Cart page 2. Click Place Order 3. Confirm payment"	Order is placed successfully	Order placed successfully	Done
TC008	Make Payment	Verify that farmer can make payment	Farmer has items in cart and order ready	"1. Proceed to Payment 2. Enter payment details 3. Submit"	Payment is processed successfully	Payment successful	Done
TC009	View Order History	Verify that farmer can view past orders	Farmer logged in with past orders	1. Navigate to Order History page	Past orders are displayed	Order history displayed successfully	Done
TC010	Logout	Verify that farmer can log out successfully	Farmer logged in	1. Click on Logout button	Farmer is logged out successfully	Logout successful	Done

Question 6 - Draw DB schema and entity relationship diagram ?

DB schema is a blueprint that outlines the structure of a database including its

tables, fields, relationships, constraints and other characteristics .

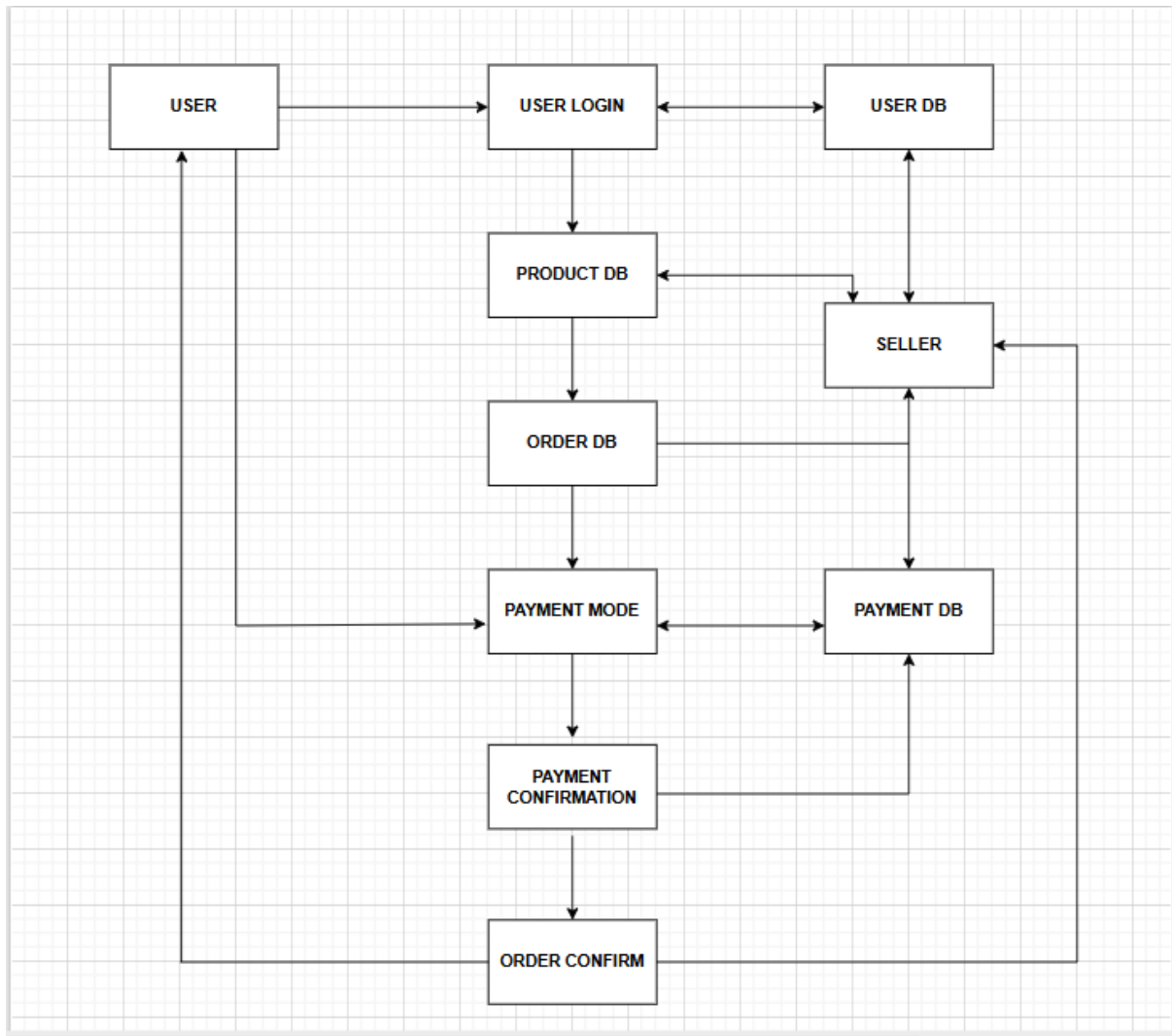
An **Entity relationship diagram(ERD)** is a visual representation of relationships between entities in a database. It depicts the entities, attributes and relationship between them.



Question 7 - Draw a data flow diagram ?

A data **flow diagram(DFD)** is a graphical representation of the flow of data within a system. It visually shows how data moves from one process to another, how it's stored, and where it ends up.

- It helps analysts and designers to understand the flow of the data within a system, identify potential bottlenecks and inefficiencies and communicate system requirements to stakeholders.



Question 8 - How should a BA handle change requests ?

Handling Change Requests in a Project- When a change request occurs (like modification in the Government Taxation structure), the project team should follow a structured Change Management

Process to ensure smooth implementation without affecting timelines or quality.

- **Steps to Handle Change Request-**

- 1. Identify & Log the Request-**

- The change request is formally submitted by the stakeholder (Client/Government notification).
- It is logged in the Change Request Register with details (reason, impact area, requester).

- 2. Acknowledge & Analyze-**

- The Project Manager acknowledges the request.
- The Business Analyst and Technical team analyze how the Tax Structure impacts existing modules (like Billing, Invoicing, Finance Reports).

- 3. Impact Assessment-**

Assess the impact on:

- **Scope** – New fields, formula updates, additional validation.
- **Time** – Extra development/testing effort.
- **Cost** – Additional resources or licensing.
- **Quality** – Ensure no existing functionality breaks.

4.Change Control Board (CCB) Decision-

- Findings are presented to the CCB (Project Manager, Delivery Head, Client Representative).
- CCB approves/rejects the change.

5.Plan Update-

- If approved: Update Project Plan, Schedule, Requirements Document, DB Design, Test Cases.

6.Implementation-

- Developers update the Tax Calculation Module.

- Testers validate with **new tax rates** using updated test cases.
- Business Analyst ensures changes meet the government rules.

7.Documentation & Communication-

- Update **Requirement Traceability Matrix (RTM)**, user manuals, and system documentation.
- Inform all stakeholders about the change.

8.Deployment & Review-

- Deploy the change in production.
- Post-deployment review ensures everything works correctly.

Question 9 -Change Request Vs an Enhancement ?

Change Request vs Enhancement-

1.Change Request-

A Change Request happens when:

- It modifies or alters the existing agreed functionality.
- Example: Govt. changes tax rule → Update billing formula.
- It's usually a correction or adaptation to meet new rules, regulations, or user needs.

2.Enhancement-

An Enhancement happens when:

- New features or functionalities are proposed beyond original scope.
- It improves the system's capabilities.
- Example: Adding AI-based recommendations, auction system, or farmer-to-consumer selling.

Question 10 – Estimations - Come up with estimations – How many Manhours required ?

Estimation - Predicting how much effort, time, cost, and resources are required to complete a task or a project.

It's not exact, but a calculated forecast based on experience, data, and assumptions.

Effort Estimation (Manhours):-

TASK	ACTIVITIES COVERED	ESTIMATED MANHOURS
1. Requirement Gathering & Analysis	Meetings with stakeholders, documenting functional & non-functional requirements, RTM prep	80 hrs
2. Design	UI wireframes (5 pages), Prototypes, Database Schema, ER Diagram, Use Case & Activity Diagrams	120 hrs
3. Development – Frontend	Login, Registration, Product Listing, Cart, Checkout, Admin Panel, Farmer Portal (if added later)	300 hrs
4. Development – Backend	API Development, Database Integration, Business Logic (Orders, Payments, Taxes, Inventory)	350 hrs
5. Integration	Frontend + Backend integration, Third-party payment gateway, Printer integration for invoices	100 hrs
6. Testing (QA)	Test Case Preparation (10+ cases), Unit Testing, System Testing, UAT Support	200 hrs
7. Deployment	Server setup, Database migration, Cloud hosting, Domain setup, SSL, Go-live activities	70 hrs
8. Documentation & Training	User Manual, Admin Guide, Training Farmers & Shop Admins	80 hrs
9. Project Management (BA + PM)	Planning, Tracking, Status Reporting, Change Request Handling	120 hrs

Question 11 - Explain UAT process ?

UAT - UAT (User Acceptance Testing) is the final phase of testing in a software project, where the client or end-users test the system to make sure it meets their business requirements before going live.

UAT (User Acceptance Testing) & Project Closure-

1. Preparation for UAT-

- **Identify UAT Scope** -Which features/functions will be tested (all critical flows: login, registration, order, payment, tax calculation, etc.).
- **Prepare UAT Plan**- Timeline, responsibilities, entry & exit criteria.
- **UAT Environment Setup** -Deploy final build in staging/UAT environment (separate from development & production).

- **Test Data Preparation** -Sample farmer products, crop details, taxation values, dummy users, etc.
 - **UAT Test Cases** -Already created test scenarios (functional + non-functional) are given to clients.
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2. Execution of UAT-

- Conduct a **UAT Kickoff Meeting** with stakeholders.
- Provide **User Guide / Demo** to clients (farmers, admin, government reps, etc.).
- Client executes **UAT test cases**:
- Verify workflows (Login, Register, Add Products, Checkout, Tax Applied).
- Validate **business rules** (taxation, order tracking, farmer sales, reports).

Check **usability & performance**.

- Record **defects/issues** in a Defect Log (with severity & priority).

3. UAT Sign-Off Process-

- Once issues are resolved- conduct **UAT Retesting & Regression Testing**.
- Prepare **UAT Sign-off Document** -signed by client stating:
 - All business requirements are met.
 - No critical/blocker defects remain.
 - The system is ready for Production Go-Live.

Question 12 - What is a project closure document and what points should be included in it ?

When a project is completed, a **Project Closure Document** (also called **Project Completion Report** or **Project Sign-off Document**) is prepared.

It is a **formal document** that confirms the project is finished, deliverables are accepted, and the project is officially closed.

1. Purpose-

- To confirm the project objectives are met.
- To get formal approval from client/stakeholders.
- To record lessons learned and ensure knowledge transfer.
- To release project resources (team, budget, tools).

2. Contents of Project Closure Document-

1. Project Overview Project Name, ID, Client, Project Manager, BA, Team Members.

Duration (Start Date – End Date).

Overall Objective.

2. Project Deliverables

List of all deliverables submitted (BRD, SRS, RTM, Database, UI/UX Designs, Test Cases, Final Application).

Status (Delivered/Accepted).

3. Project Performance

Scope Achieved vs Planned.

Budget Utilization.

Timelines (Planned vs Actual).

4. UAT & Client Acceptance

Summary of UAT results.

Sign-off from client.

Confirmation that requirements were met.

5. Lessons Learned

What went well (strengths).

Challenges faced.

Recommendations for future projects.

6. Outstanding Issues (if any)

Any pending items or change requests (to be handled in support phase).

7. Knowledge Transfer

User manuals, training material, source code handover.

Support & maintenance plan.

8. Project Closure Approval

Signatures of Project Manager, BA, Client, and Stakeholders.